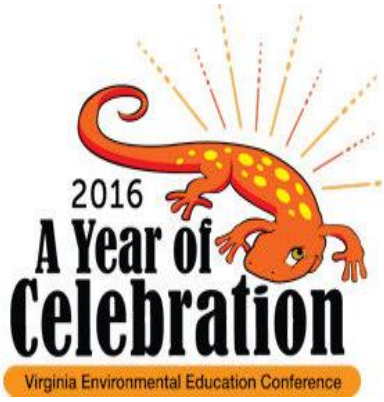
Wednesday
November 16



8:30 a.m. – 7 p.m.	Registration Desk Open
10 a.m. – 12:30 p.m.	Virginia Association of Environmental Educators (VAEE) General membership meeting
12:30 – 1:30 p.m.	Lunch
1:30 – 5 p.m.	Virginia Resource-Use Education Council Meeting (VRUEC)
2 – 4 p.m.	Tour of Historical Williamsburg with John V. Quarstein – Meet outside Capitol Building Tour and program at Watermen's Museum *Participants must have their own transportation for both tours.*
5 – 8 p.m.	Cash Bar – Silent Auction Opens
6 – 7 p.m.	Dinner
7 – 8 p.m.	Evening Palooza – Roundtable presentations/discussions, networking and auction

Thursday
November 17

7 a. m. – 2 p.m.	Registration Desk Open
7:30 – 8:30 a.m.	Breakfast
8:30 – 9 a.m.	Welcome, Agenda and Announcements
9 – 9:45 a.m.	Keynote Speaker, Pamela Northam, Lynnhaven River Now, Pearl Home and Pearl Faith Coordinator, Success in Environmental Education
10 – 11 a.m.	Concurrent Session 1
11:15 a.m. – 12:15 p.m.	Concurrent Session 2
12:15 – 1:30 p.m.	Lunch Status of the Virginia Association of Environmental Education Association (VAEE) Recognition of the Centers for Environmental Education Excellence
1:30 – 2:30 p.m.	Concurrent Session 3
2:45 – 4:45 p.m.	Concurrent Session 4
5:30 - 6:45 p.m. *	Virginia Association of Science Teachers (VAST) Professional Development Institute Opening General Session I, Keynote Speaker: Ellen Stofan, Chief Scientist NASA
6:45 - 8:30 p.m.*	Night with the Exhibitors (Cash Bar) Meet Your Regional Director (Complimentary Cider and Snacks)

* Please pre-register on the environmental education conference website or register for the VAST conference to attend these events.

Field Trips

Nov. 16 2 – 4 p.m.

Tour of Historical Williamsburg –Led by award-winning historian, author, and preservationist John V. Quarstein.

Quarstein served as an adjunct professor at several universities including the College of William and Mary. After a 30 year career with the Virginia War Museum, he serves as Director Emeritus and Historian for the City of Hampton, Virginia. He serves as a museum consultant and historian for various cities and counties, including the city of Poquoson and county of Gloucester. Furthermore, he provides leadership and project management for the Havre de Grace Decoy Museum, The Mariners' Museum, The Chamberlin, Rebecca Vaughan House, and T.C. Walker House. During his 32-year career he has created or revitalized 16 museums and preserved nine historic sites, such as Lee Hall Mansion, Endview Plantation, Warwick Court House and portions of the Williamsburg Battlefield. Quarstein will be available after the tour to sign books.

Meeting place for the tour will be announced at the meeting.

Environmental Education Program and Tour of the Mariner's Museum - Yorktown
Michael Steen, Director of Education at the Watermen's Museum in Yorktown will offer the following program and then tour of the museum:
Environmental Impacts on History: The Yorktown Shipwrecks Project
At Yorktown on October 18, 1781 the British surrendered over 100 ships to the American and French allies. They were all either sunk or damaged beyond repair. What happened to the ships? How has the environment and mankind impacted the sunken fleet? Join us for an exploration of the Betsy project and ongoing Yorktown Shipwrecks Archeological program.

Sessions

Thursday – November 17
Concurrent Session 1: 10 – 11 a.m.

A Vision for Environmental Education: How Can We Evaluate Environmental Education Efforts & The Contributions of Virginia's Centers for Environmental Educational Excellence (CE3s) to Environmental Literacy
Greg Eaton, Claytor Nature Study Center, Lynchburg College
David Ruble, Office of Environmental Education, Department of Conservation and Recreation

Education to improve environmental literacy occurs in many learning environments, including classrooms, laboratories, and countless non-formal spaces beyond school grounds. A significant focus among scholars of effective teaching and learning, and among educators interested in improving environmental literacy is the value of environmental or nature education centers in providing immersive, experiential learning environments. In October, 2015, the Virginia Department of Conservation and Recreation recognized 14 such centers as the first Virginia Centers of Environmental Education Excellence. We will examine the characteristics of these centers that are necessary to providing the highest quality learning experiences, the evidence that quality outdoor educational experiences improves learning in many subjects, their contributions to Virginia's education landscape, and the challenges to

more wide-spread utilization of this mode of education by Virginia schools.

Building Nature Literacy in Urban Secondary Students
Sally Lewis & Sandra Hooper, Kecoughtan High School, Hampton City Schools

Today's students are digital natives who are often disconnected from the natural world. Building literacy about the natural world is a challenge. In this session, we'll present short and extended activities to get middle and high school students outside for SOL aligned science lessons on a regular basis to help them make the connections needed to build literacy. Some activities use phones, GPS units, tablets, and iPads outdoors. Participants will receive handouts of all activities. SOLs addressed—ecosystems, food webs, classifying organisms, wildlife mapping with GPS, biodiversity surveys. Ideas for modifying activities to meet the needs of a variety of learners will be presented.

The Monarch Butterfly
Katharine Snavely, Virginia Master Naturalist

This is a PowerPoint presentation in the form of a Jeopardy game. There are four categories: How Do You Tell, Life Cycle, Migration, and You Can Help. According to Monarch Watch, a leading organization for research and support of the Monarch butterfly, the population overwintering in Mexico has decreased 96.3% between 1996 and 2014. This is a truly unique insect. If it is to be saved, we must understand it and create environments in which it can thrive.

What about Wastewater? Sparking Student Interest in a Secure Water Future
Sarah Crawford & Molly Bertsch, Hampton Roads Sanitation District

Clean water is a defining issue for our generation and wastewater collection and treatment plays an essential role in protecting this valuable resource. But how do you get past the "yuck factor" and make working with wastewater sound cool? Walk through several interactive modules developed by HRSD to teach water quality and environmental engineering concepts to middle and high school students. These modules will fit any budget and can be tailored to align with multiple SOL criteria. Attendees will leave with hands-on teaching experiences as well as additional resources for bringing clean water issues into the classroom.

Concurrent Session 2: 11:15 a.m. – 12:15 p.m.

Beyond Gardening: Teaching Urban Ag and Environmental Science and Engineering with Low-Budget Design, Carpentry, Plumbing, Electronics, Turbines, Passive Solar
Jim Egenrieder, Virginia Tech, Washington Academy of Sciences

This session is about engaging young people in thinking about sustainability and innovation in environmental studies.

Environmental Education: Youth Educating Kids about the Environment
Talia Schmitt

Eco-Schools Leadership Initiative (ESLI) is a student-led organization in which college and high school students use interactive activities to teach elementary school students about environmental topics ranging from climate change to food sustainability. ESLI is based at the College of William and Mary and ten other schools in Virginia. ESLI's mission is to create a network of young people who are passionate about

environmental education (www.eslileaders.org). In this session, we will play an interactive environmental education game, brainstorm environmental activities to do with kids, and learn how to build an ESLI chapter at your school. If you want a fun, hands-on, multigenerational, uplifting session, come to this session!

Notes from Nature: Plants of Virginia
Andrea Weeks, George Mason University

Our growing knowledge of the flora of Virginia is integrally tied to herbaria, research collections that house archivally prepared plant specimens gathered and identified by taxonomic experts. Every species treatment in the Flora of Virginia and the vast majority of occurrence records on the Digital Atlas of the Virginia Flora are based on Virginia-collected herbarium specimens. These collections are a lasting source of our scientific knowledge about plants in the Commonwealth; they and people who consult them are the engines of discovery. Notes from Nature (http://www.notesfromnature.org/) is an NSF-funded citizen science platform that allows citizens to participate in scientific research by transcribing specimen label data from these specimens. Over the next four years, nearly 500,000 Virginian herbarium specimens will be made available on the Notes from Nature – Plants of Virginia platform, which offers unparalleled access to the plan biodiversity of the state by students, naturalists and educators. These natural history specimens date from late 1800's to present day and were collected from all counties in the Commonwealth. On the platform, the transcriber is given an image of an herbarium specimen and asked to parse information such as scientific name, locality, habitat, date of collection, and collector from the label on the image. This information is transferred into a database and ultimately becomes available to the public. We have designed a lesson plan appropriate for grades 9 – 12 aligned with Virginia's SOL's that incorporates hands-on herbarium specimen preparation using Virginian plant species, discussion of the process of specimen-based scientific research and future careers in biodiversity informatics as well as online participation on the Notes from Nature – Plants of Virginia Platform. A full lesson plan including frameworks will be provided to workshop participants. This lesson plan can be adapted to a wide range of youth or adult audiences and our hope is that environmental educators can use it in the future to broaden the knowledge of their students.

Strategies for Watershed Understanding: Discovering Hydrology and Regional Relationships
Emily Ford & Lillian Ledford, Blandy Experimental Farm & The State Arboretum of Virginia

Do you use watershed models for your meaningful watershed educational experiences (MWEEs)? Learn to increase the rigor and relevancy of watershed modeling using strategies focused on Virginia regions and landforms as well as surface runoff caused by human impacts. We discuss how the activity helps students: a) hone science investigation skills b) deepen their understanding of the flow of water, watershed boundaries, and influences of slope and erosion on water systems and c: understand human impacts on the landscape and our watershed. The session incorporates science, technology, engineering and math (STEM) as we explore Virginia's regions (social studies), construct watershed and roof models (engineering), and examine watersheds and our effect on watershed systems health (science). Participants also share ideas on how to include this activity in the field and classroom, and explore how to incorporate activities and ideas into a MWEE experience in elementary and middle school.

Concurrent Session 3: 1:30 - 2:30 p.m.

Celebrating Collaboration: How One Middle School Integrates Three Levels of Science through Environment – Based Learning

Elise Sheffield, *Hannah West, Boxerwood Nature Center*
Gretchen Hall, Sarah Hockman, Julie Lipscomb, Sarah Schultz, Maury River Middle School

The science department of Maury River Middle School (Lexington VA) offers a model of how collaborating with local partners leads to better science, engaged learners, and an improved environment. Over the past four years, the 6 science teachers at MRMS have developed a multi-project, multi-grade curriculum that helps students see the links between different spheres of science while also increasing skills and competence as science, technology, engineering, and math (STEM) learners. In partnership with the Boxerwood Nature Center, we use our local watershed as an integrating context across three grade levels, engaging more than 450 students in sustained project-based learning (PBL) each year. In this panel presentation we will outline our model and explain how we addressed logistical challenges and constraints. Come get inspired to start a fruitful collaboration in your own community.

Celebrating EBase USA: Blue Ridge- Sustainability Lessons on a Global Scale
John Lewis & Inge Terrill, Apple Ridge Farm, Copper Hill, Virginia

Apple Ridge Farm is celebrating its new EBase USA: Blue Ridge, housed in an upcycled, solar and wind powered, off-grid 1917 boxcar. For over 40 years, Apple Ridge Farm has been transforming the lives of underserved children and families in the Roanoke area through engagement in unparalleled educational, cultural and outdoor experiences.

Come learn how Apple Ridge acquired EBase USA, how it fits into a global EBase movement, what sustainability programs it offers, and how it plans to build new STEM programs there for people of all ages. Outside, hands-on activities for this session includes building solar, wind, and water energy models geared towards elementary and middle school students. This session will also include a discussion on creating an educational "Reduce, Reuse, Recycle Travel Bag."

Environmental Civic Action
Vince Meldrum & Donna Power Stowe, Earth Force

Earth Force invites you to learn how educators are using our Community Action and Problem Solving process to facilitate students in taking action to improve their communities by applying their classroom lessons to "wicked problems." For the last seven years Earth Force, in partnership with Agrium, has been empowering students in Northern Virginia to use their concern for the environment as the launching pad for civic action and problem solving in their community. Learn how the Earth Force program empowers young people to lead civic action projects. Learn how our approach is being used to meet the Virginia SOL for Science, NGSS, and STEM standards. Learn more how our model helps your class be a part of the Virginia Environmental Literacy Challenge.

On-Site Meaningful Watershed Education Experience
Lindy Durham, Henricopolis Soil & Water Conservation District

This session will present the meaningful watershed educational experience (MWEE) delivered to 6th grade students at Short Pump Middle School in Henrico County. Henricopolis staff and the SPMS teachers delivered the MWEE during several class periods doing field investigations on the school grounds and using technology to analyze and share what the students discovered. Ultimately, participants in this session will learn that conducting a MWEE is not scary – but is a lot of fun.

Concurrent Session 4: 2:45 – 4:45 p.m.

Best Practices for Implementing Sustainable MWEE Projects
Kevin Schabow & Andrew Larkin, NOAA Chesapeake Bay Office

The NOAA Chesapeake Bay Office has supported watershed education in Virginia for over 15 years through its environmental education grant programs, including Chesapeake Bay Watershed Education and Training (B-WET). The cadre of organizations this funding has supported has amassed a tremendous amount of knowledge and experience about how to successfully implement projects in schools. However, there are still many challenges facing environmental education practitioners. We have found that sharing among organizations who provide watershed education is surprisingly limited. While there is a wealth of information about "best practices" in environmental education, opportunities to learn from peers are lacking. This workshop is part of a broader effort by NOAA and our partners to highlight model projects and best practices to address common challenges to watershed education providers. In this workshop, we'll convene representatives from several of the organizations that have partnered with NOAA. We'll discuss strategies for common challenges to implementing Meaningful Watershed Educational Experiences, including funding sustainability, teacher turnover, administrative support, and more. Past and current grant recipients from a range of organization types (non-profits, universities, school divisions) will be invited to share lessons learned from their projects. Intra-session breakouts will be held so individuals can share experiences that may be more prominent to a particular sector (small non-profits for example). Attendees will brainstorm strategies for tackling common challenges and make recommendations for NOAA and other funders to both address those challenges and disseminate information about strategies that are working.

Ecocriticsm Goes Elementary
Ashley Ring & Kit Richards, Fishburn Park Elementary School, Roanoke City Public Schools

Fishburn Park Elementary School, a 2012 National Green Ribbon Schools winner, is located in the Roanoke Valley. The faculty and staff educate young stewards of the Earth by intertwining green practices into every subject taught. Reading, in particular, lends itself to many environmental teaching moments. In this session, we will share thought provoking environmental literature and suitable, engaging follow-up lessons. These lessons adhere to Virginia Standards of Learning and incorporate green practices.

Hands on Hurricanes, Tornadoes, and Blizzards
Juliane Codd, NOAA, Project Atmosphere, Richmond Public Schools

This is a hands-on session that goes through three models from an American Meteorological Society (AMS) and National Oceanic and Atmospheric Administration (NOAA) collaboration on the formation and impact of hazardous weather. Teachers will participate in activities and receive the basics to take back to students. Lessons can be modified to be taught to K – 12.

How to Plan a Demonstration Habitat Project to use for Outdoor Experiences
Susan Walton, Gloucester Schoolyard Habitat Pollinator Partnership
Barbara Dunbar, 4-H Schoolyard Habitats Outreach for York/Poquoson
Carol Heiser, Virginia Department of Game and Inland Fisheries

Does your program need an effective space for wildlife study that is close to your building? Or, do you work with schools that need an accessible wildlife habitat for study? We will discuss how to plan and install a small wildlife habitat that can be used with students for meaningful field experiences. We will work through steps on how to plan and select native plant species that increase wildlife diversity and can

be used as an instructional setting. For the second part of the session, Carol A. Heiser, Habitat Education Coordinator for the Virginia Department of Game and Inland Fisheries, will lead participants in an outdoor session to assess a site's habitat value and brainstorm improvements that will also support instructional objectives.

A special thank you to those who have served on the planning committee:

Sheila Barnett, Virginia Department of Conservation and Recreation
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Elise Corbin, Peter Francisco SWCD
Stephanie DeNicola, Culpeper SWCD
Greg Eaton, Lynchburg College, Claytor Nature Study Center
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Richard Groover, Virginia Academy of Science
Ginny Hoffman, Headwaters SWCD
Fleta Jackson, City of Norfolk Stormwater Outreach/Education
Catherine Short, VMN Historic Rivers
Susan Sims, Banshee Reeks, VMN Chapter – Northern Virginia
Charlene Talcott, Virginia Association of Environmental Educators
Bonnie Tillotson, Virginia Cooperative Extension
Sue Young, VMN Riverine Chapter

A year of celebrations:

Thank you for sharing your celebrations. Here are the celebrations that were shared with us:

100 Years for the National Parks Service
100 Years for the Virginia Department of Game and Inland Fisheries
80 Years for the Department of Conservation and Recreation's Virginia State Park system
30 Years for the Department of Conservation and Recreation's Natural Heritage Program
30 Years for the Department of Environmental Quality's Coastal Zone Management Program
28 Years for Apple Ridge Farm celebrating environmental education and EBase.

Thank you to our sponsors for helping to make this conference possible.


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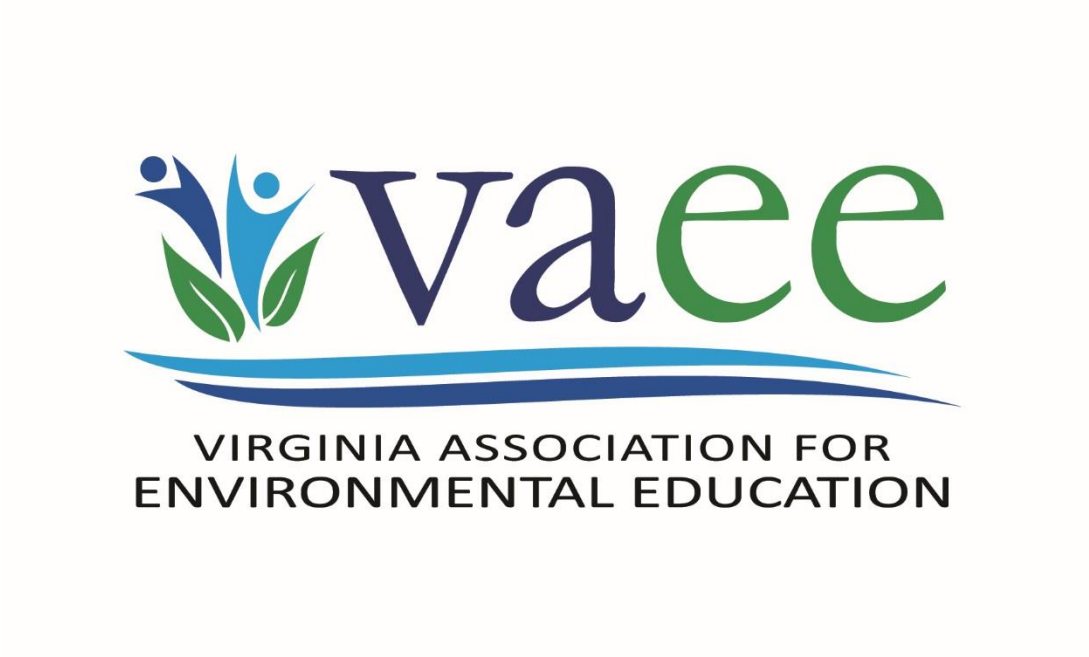
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